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Removal Site Evaluation for the Quanta Resources Corporation Site, Edgewater, New Jersey

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File

I. INTRODUCTION

Reevaluation of historical analytical data by the United States Environmental Protection Agency (EPA) has demonstrated the Quanta Resources Corporation (QRC) site continues to pose an imminent and substantial danger. As a result, this Removal Site Evaluation (RSE) was conducted to determine the extent of the threat.

EPA has documented the release of numerous Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances to the environment at the QRC site. Polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs) and heavy metals are present in the soils at the site. These contaminants are subject to leaching into the Hudson River which borders the site. Asbestos material is also present in a boiler house which could be accessed by trespassers. CERCLA Hazardous Substances may also be improperly stored in two underground storage tanks (USTs). Due to the substantial probability of CERCLA Hazardous Substances significantly impacting human health and the environment, a CERCLA Removal Action is warranted to address the PCB hotspot at sampling point QE002, the asbestos containing materials, the discharge of hazardous substances to the Hudson River and the underground storage tanks/pipes.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Physical location

The QRC site is in Bergen County at 163 River Road, Edgewater, New Jersey, Lots 1, 2, and 3, Block 95 on the Tax Map of Edgewater Borough (see Attachment 1). QRC was a coal tar processing facility. The facility is located directly west of Manhattan along the Hudson River, approximately midway between the George Washington Bridge and Lincoln Tunnel crossings. Various sized industrial facilities surround the QRC site along the waterfront. A converted industrial building now houses a

bank and other business offices on the southern border of the site.

The nearest private residents are located within 1000 feet west of the site. River Road is Edgewater's major vehicular thoroughfare. Several large condominiums are located within 1/2 mile of the site. Residential housing overlooks the site from atop the Palisades, several hundred feet west of River Road. Palisades Interstate Park is located three miles north of the site along the New Jersey Shore of the Hudson River. Several municipal marinas are located near the QRC property. The lower Hudson River is used for recreational purposes and is capable of supporting a substantial sports and commercial fishery. It is a major habitat of the striped bass, a species which supports a multi-million dollar sports fishery along the east coast. The shoreline in the immediate vicinity of the facility has been identified as part of a particularly important nursery area. The river is also a major commercial waterway serving major ports in both New Jersey and New York.

A site map, including locations of current and former site buildings, is presented in Attachment 2. Most of the structures used by QRC are no longer standing, but some former structures are identified by the remains of concrete foundation slabs.

2. Site characteristics

The Allied Chemical-Asphalt Division began operations at the subject property in the 1930's. Allied held the property for several decades until the property was sold in 1974 and the facility was leased by various companies including QRC. These companies were involved in the recovery and reprocessing of waste oil and hazardous waste products.

The facility contained sixty-one aboveground storage tanks with a total storage capacity of 9,000,000 gallons, plus as many as ten underground storage tanks. Large quantities of chemically contaminated waste oil, tar, sludge, asphalt, process water and unknown liquids were stored in tanks throughout the site.

The New Jersey Department of Environmental Protection (NJDEP) stopped QRC operations on July 2, 1981, after learning oil stored in tanks at the facility contained PCBs as high as 260 parts per million (ppm). QRC filed for bankruptcy on October 6, 1981. Principal operating personnel for QRC were charged with hazardous waste violations in New York, New Jersey, Pennsylvania, and Massachusetts with the company President and Terminal Manager

being convicted.

After QRC filed for bankruptcy, the facility was not usually occupied. During this time, deterioration of above and underground storage tanks, transfer lines and drainage systems occurred, exacerbating releases of materials stored on site. CERCLA Hazardous Substances contained in these materials included: PCBs, benzene, cyanide, ethyl benzene, phenol, toluene and trichloroethane. Soils throughout the site were heavily contaminated with chemically tainted oil and other materials released through spillage or poor housekeeping. Large areas of the facility were frequently flooded for extended periods. This flooding combined with an inadequate drainage system resulted in contaminated oily discharges to the Hudson River. River water entering the underground separator discharge line also flushed out quantities of chemically contaminated oily products to the Hudson River with the rising and falling tides.

The stored waste materials, most of the USTs, the aboveground storage tanks and other contaminated structures and media were removed during cleanup actions begun by the EPA in March 1985 (see section II B1).

3. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

On March 23, 1992, two samples of pipe insulation were taken for asbestos analysis. Sample B1 was taken from the boiler house and sample B2 from a pipe immediately in front of the Hudson River bulkhead. Sample locations are noted on attachment 3. Table 1 summarizes the asbestos analytical results:

Table 1: Asbestos Analysis

Sample ID	Amosite	Chrysotile	Non-asbestos
B1	35%	15%	50%
B2	50%	0	50%

Amosite and chrysotile are two forms of asbestos. Therefore, each sample contained a total of 50% asbestos. The asbestos insulation on both pipes was deteriorating and friable. The pipe adjacent to the bulkhead was exposed to the elements.

Under the direction of the EPA, on March 26, 1992, the Technical Assistance Team (TAT) collected five soil samples, one sediment sample and one water sample (see Table 2). These sample locations are noted On Attachment 3.

Two soil samples demonstrated elevated lead levels. Lead is a CERCLA designated Hazardous Substance, as listed in 40 CFR Table 302.4. The analysis for soil samples QE001 and QE002 reported total lead at 350 ppm and 2100 ppm respectively. This is significantly higher than the 600 ppm maximum level stipulated in the New Jersey Department of Environmental Protection and Energy (NJDEPE) Proposed New Rule: N.J.A.C. 7:26D, Clean Standards for Contaminated Sites (CSFCS) for nonresidential surface soils. These concentrations are also considerably elevated above the analyzed background level of 120 ppm, suggesting this contamination is not indigenous to the area.

Lead was detected at 0.2 mg/l in the water sample collected from the Hudson River. The associated CSFCS groundwater standard is .01 mg/l. This demonstrates possible migration of lead from the QRC site to the Hudson River.

Soil sample QE001 demonstrated an elevated level of arsenic at 130 ppm. Arsenic is a CERCLA designated Hazardous Substance. The CSFCS total arsenic level standard of 20 ppm was exceeded in soil samples QE001, QE002 and QE003 at 130 ppm, 25 ppm and 21 ppm, respectively. These levels also exceeded the arsenic concentration detected in the background sample.

Elevated chromium levels were demonstrated in soil samples QE001 and QE002. Chromium is a CERCLA designated Hazardous Substance. Most notably, the chromium level in the sediment sample was 94 ppm which is significantly above the background level of 36 ppm. This elevated level indicates chromium metal may have migrated from the site into the Hudson River and consequently settled, in part, in the river sediments. Moreover, chromium was detected in the Hudson River water sample at 0.28 ppm which exceeds the CSFCS groundwater standard of 0.1 ppm. The following table summarizes the total metals analyses reported for samples taken at the QRC site.

Table 2: Total Metals Analysis - reported in ppm unless otherwise indicated

SAMPLE	ARSENIC	CHROMIUM	LEAD
QE001-SOIL	130	48	350
QE002-SOIL	25	58	2100
QE003-SOIL	13	13	120
QE004-SOIL	21	6	69

QE005-SOIL	7.2	<4	70
QE008-WATER	14 ppb*	280 ppb	200 ppb
QE009-SEDIMENT	15	94	120
QE011-BACKGROUND	20	36	130

*ppb - parts per billion

The following table summarizes the TCLP metals analyses reported for samples taken at the QRC site.

Table 3: TCLP Metals Analysis - reported in ppb

SAMPLE	ARSENIC	CHROMIUM	LEAD
QE001-SOIL	17	<50	300
QE002-SOIL	23	<50	2300
QE003-SOIL	11	50	<100
QE004-SOIL	91	70	400
QE005-SOIL	7	<50	200
QE008-WATER	NOT RUN	NOT RUN	NOT RUN
QE 009-SEDIMENT	38	60	200
QE011-BACKGROUND	3	70	600

PCB-contaminated material becomes regulated by the Toxic Substances Control Act (TSCA) when it reaches the threshold of 50 ppm. PCBs (Aroclor 1242) were found at soil sample point QE002 at 62 ppm. Therefore these soils contaminated with PCBs greater than 50 ppm are regulated by TSCA. PCBs are also a CERCLA designated Hazardous Substance. Moreover, the NJDEPE CSFCS stipulates the soil cleanup level for PCBs is 2 ppm.

VOCs were reported in several soil samples and the water sample. The VOCs listed in Table 4 are all CERCLA designated Hazardous Substances.

Table 4: VOC Analytical Results

Parameter	QE002	QE003	QE004	QE005	QE008
Acetone	---	---	---	19 ppm	30 ppb
Benzene	---	---	---	---	9 ppb
2-Butanone	38 ppm	---	---	---	---
Ethylbenzene	---	18 ppm	6 ppm	---	5 ppb
2-Hexanone	9 ppm	---	---	---	---
Styrene	---	23 ppm	---	---	---
Toluene	---	21 ppm	---	---	5 ppb
Xylenes	2 ppm	126 ppm	16 ppm	5 ppm	10 ppb

VOCs were not detected in the background sample. Again, this seems to indicate the contamination is a consequence of a past discharge on the QRC site.

VOCs detected in various soil samples were also detected in the water sample collected from the Hudson River. It is possible these VOCs are migrating into the river. Moreover, benzene was reported in the river water sample at .009 ppm. The conjugate CSFCS groundwater standard is .001 ppm.

The June 1990 National Institute of Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards lists coal tar (benzene-soluble fraction) and its constituents benzo(a)pyrene, phenanthrene, chrysene, anthracene and pyrene as carcinogens. The following two tables list the levels of some of these constituents, as well as, some SVOCs which exceed the NJDEPE CSFCS standards. All constituents listed in Tables 5 and 6 are CERCLA designated Hazardous Substances. Coal tar-derived constituents in tables 5 and 6 are printed in bold type.

Table 5: Soil Samples-Analytical Results (Units in ppm)

Parameter	QE001	QE002	QE003	QE004	QE005	CSFCS
Naphthalene	------	------	13,000	------	------	4,200
phenanthrene	1,700	4,900	5,500	930	300	*
anthracene	980	------	1,500	230	140	10,000
pyrene	2,700	3,600	3,400	1,200	560	10,000
chrysene	1,100	1,400	850	290	360	2.5
benzo(a)anthracene	980	1,100	790	300	280	2.5
benzo(k)fluoranthene	------	940	------	230	320	2.5
benzo(a)pyrene	1,100	1,100	------	260	250	.25
indeno(1,2,3-cd)pyrene	------	640	------	------	------	2.5

benzo(ghi)perylene	------	520	------	------	2.5

* no CSFCS standard stipulated

Table 6: Water and Sediment Samples-Analytical Results (Units in ppm)

Parameter	Water	Sediment	CSFCS
phenanthrene	33 ppb	82	*
anthracene	7 ppb	18	10,000
pyrene	72 ppb	110	10,000
chrysene	20 ppb	35	2.5
benzo(a)anthracene	22 ppb	41	2.5
benzo(k)fluoranthene	12 ppb	32	2.5
benzo(a)pyrene	18 ppb	--------	0.25

* no CSFCS standard stipulated

It is significant to note that none of the SVOCs detected in the background sample were above CSFCS limits.

4. Site assessment activities/observations

The following EPA personnel were directly involved in the Removal Assessment conducted for the QRC site: John Witkowski (908-321-6739) and Thomas Budroe (908-906-6191) of the Technical Support Section (TSS), Edison, New Jersey.

On March 4, 1992, the On-Scene Coordinators (OSCs), an attorney from the Office of Regional Counsel, and potentially responsible parties (PRPs) and/or their consultants inspected the site. Stained soil was evidenced at several locations. Other areas of the site were noted to contain a black solid material which appeared to have been extruded from the ground. Insulation material observed in a defunct boiler house and on a pipe located adjacent and parallel to the bulkhead appeared to be asbestos. Standing water was noted at several locations on site. An inactive oil-water separator was located in the northeastern portion of the site. A sausage-style absorbent boom secured to the bulkhead in the Hudson River encompassed water containing an oily sheen. The exposed sediments in the Hudson River bed adjacent to the bulkhead also had an oily sheen. Other site features included an electrical substation in the northwestern portion of the site and a pile of rubble from the demolition of a

smoke stack lay midway between the western fence line and the bulkhead.

On March 23, 1992, TAT conducted a sampling event under the direction of the EPA. Due to inclement weather conditions, sampling was limited to the pipe insulation material in the boiler house and on the pipe adjacent the bulkhead.

On March 26, 1992, under the direction of the EPA, TAT conducted a second sampling event. Five soil samples, one water sample from the Hudson River and an associated sediment sample were collected. The site sampling locations are depicted in Attachment 3. The analytical data package is filed in the Removal Action Branch archives. The samples were analyzed for VOCs, SVOCs, Toxic Characteristic Leaching Procedure (TCLP), Total Petroleum Hydrocarbons (TPH), PCBs, total metals (arsenic, chromium and lead) and total cyanides. PCB and TCLP analyses were not performed on the aqueous samples. A duplicate sample, a rinsate sample, a trip blank and a field blank were also collected to assure a QA-2 level of quality assurance.

The sediment and water samples were collected at low tide directly off the pier within the boomed area. The sediment was dark brown and exhibited an oily sheen. The sediment sample was taken at a depth of zero to six inches, approximately five feet east of the bulkhead and 20 feet from the property fence at the northeast corner of the site. The water sample was taken within two feet of the same location prior to taking the sediment sample.

Five soil samples were collected at an approximate depth of 12 inches. At several sampling locations it was necessary to break through layers of asphalt and concrete to obtain the soil sample. Rock was encountered at a depth of 14 inches. Water with an oily sheen leached into three of the locations during sampling. A two inch diameter copper pipe was noted at a depth of six inches while taking soil sample QE004. An off-site, background soil sample was collected from the hill behind Coffee Associates, Inc. which is opposite the site on River Road.

The OSC conducted a site reconnaissance on April 18, 1994. During this reconnaissance, two fence breaches and two locations at which the fence was incomplete were noted. Several holes bored into the ground and marked with flags were distributed throughout the site indicating a recent sampling event. A pipe approximately two inches in diameter, which surfaced and ended in the southeast area of the site, was oozing a black sludge. The absorbent boom, previously deployed in the Hudson River to

sequester the bulkhead, was out of the water laying on the ground. A nine by five foot puddle of a soft black tar-like sludge lay at the bottom of an inclined slab of concrete. This area appeared as if it may have been recently excavated. The asbestos wrapped pipe which had been situated adjacent to the bulkhead was absent. Pockets of river water and sediments adjacent to the bulkhead were covered with an oily sheen. Standing water was observed throughout the site. A channel in the ground along the northeastern area fence line carried standing water towards the Hudson River. A black substance, extruded from the ground to the surface, was noted at several dispersed locations. Some of the exterior metal sheathing enclosing the boiler house were loose and blowing in the wind. A two by ten foot gap had developed in one wall of the boiler house. The interior of this boiler house, which had been documented to contain asbestos, was partially exposed to the elements.

5. NPL status

The QRC site is not a National Priorities List (NPL) site. A Preliminary Assessment was completed for this site on March 26, 1985.

B. Other Actions to Date

1. Previous actions

The NJDEP halted all QRC operations on July 2, 1981. Under threat of Federal and state cleanup action, the landowners hired a contractor in the fall of 1982. Between then and the summer of 1983, the contractor tended to small spills, maintained the containment boom, dismantled sections of transfer line, installed emergency clay diking, constructed an overland discharge line from the separator to the Hudson River and arranged for the disposal of 200,000 gallons of aqueous waste contained in a leaking facility tank. About 776,000 gallons of salable oil were removed from the site during 1982 through early 1983. Despite these actions, the landowners and their contractor did not accomplish the major portion of the cleanup or stabilization goals. The NJDEP and landowners signed an Administrative Consent Order in November of 1983 which detailed a complete cleanup. This resulted in only minimal and inadequate cleanup activities at the site.

A two part CERCLA Removal Action Memorandum was approved by EPA on March 21, 1985, to mitigate the threats to the environment and human health detailed above (see Attachment 4). The objectives

of this removal action are detailed in Section V of Attachment 4. The removal action began on April 3, 1985, and was conducted in two phases. Phase I was an immediate removal to drain PCB-contaminated oil from deteriorating tanks, restore the oil/water separator to normal operation, empty water from badly deteriorated tanks, remove most flammable materials and improve site security.

Phase II was a planned removal to address disposal of the majority of the 750,000 gallons of PCB-contaminated waste oil and 4,000,000 gallons of other hazardous liquids and waste sludges from the storage tanks; emptying, cleaning and filling on-site USTs (with inert material); containing any off-site contaminant leakage; and disposing of all contaminated drums stored on site.

A statutory $1 million exemption request was also signed on March 21, 1985 (see Attachment 5). On May 24, 1985, a ceiling increase request for $517,500 was signed for the immediate removal action. The procurement of additional funds was necessitated since the amount and types of wastes requiring disposal were larger and more complicated than first estimated (see Attachment 6). On July 23, 1985, a second ceiling increase request for $500,000 was signed for the immediate removal action. This elevated the total project ceiling to $1,581,500. The substantiation for this request and a description of work completed to this date are included in the ceiling request in Attachment 7. On August 1, 1985, a six-month time exemption to allow continued removal activities was signed (see Attachment 8).

2. Current actions

Currently, all EPA actions are of an enforcement nature.

C. State and Local Authorities' Role

1. State and local actions to date

See the Previous actions section II B1 above.

2. Potential for continued State/local response

No other State or local response is anticipated in the future.

III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

The most significant threats to the public are exposure through direct human contact with contaminated soils and asbestos and indirect contact with contaminated river water and biota. Although access to the site has been restricted by a chain link fence, trespassers can access the site at locations where the fence is incomplete.

PCBs were discovered at sampling point QE002 at 62 ppm. Moreover, analysis of other site soils, sediments and river water indicated SVOCs (including carcinogenic coal tar derivatives), VOCs and heavy metals were also present (see Tables 1 through 6). Asbestos was also found in the boiler house and on piping adjacent to the bulkhead (recently removed without notification being given to EPA).

Surface soils may be a more significant exposure pathway if future use of the site is residential. Exposure can occur via dermal contact, ingestion of home grown crops, and inhalation of particulates. Contaminant concentrations remaining in the subsurface soils may be a concern if, during any future construction activities, these soils are brought to the surface where dermal contact and particulate inhalation are possible.

The health effects of some of the site contaminants detected in the water, sediment and soils are outlined below. Synergistic adverse effects are possible in conjunction with any combination of the hazardous substances at the site.

Arsenic: Arsenic is a listed carcinogen. Inhalation, ingestion and/or dermal contact can cause ulceration of the nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation and hyperpigmentation of the skin.

Asbestos: Asbestos is a listed carcinogen. Inhalation or ingestion can cause Dyspnea, interstitial fibrosis, restricted pulmonary function and/or finger clubbing.

Benzene: Benzene is a listed carcinogen. Inhalation, ingestion and/or dermal contact can cause irritation of the eyes, nose and respiratory system, giddiness, headache, nausea, staggered gait, bone marrow depression, fatigue, anorexia, lassitude and dermatitis.

Chromium: Inhalation, ingestion and/or contact with chromium can cause respiratory system irritation, nasal septum perforation, liver and kidney damage, leukocytosis, leukopenia, monocytosis, eosinophilia, conjunctivitis, skin ulcer and sensitization

dermatitis. In addition to their toxicity, many chromate compounds are listed carcinogens.

Lead: Inhalation, ingestion and/or dermal contact with lead metal can cause weakness, lassitude, insomnia, facial pallor, anorexia, weight loss, malnutrition, constipation, abdominal pain, colic, anemia, gingival lead line, tremor, paralysis of wrists and ankles, encephalopathy, nephropathy, irritation to the eyes and hypotension.

Ethyl benzene: Inhalation, ingestion and/or skin absorption of ethyl benzene can cause dermatitis, narcosis, coma, mucous membrane damage, headache and eye irritation.

PCBs: Ingestion and dermal contact with PCBs can cause cancer, dermatitis, liver damage, edema, jaundice, vomiting, anorexia, nausea, abdominal pains and fatigue.

Toluene: Inhalation, ingestion and/or skin absorption of toluene can cause fatigue, weakness, confusion, euphoria, dizziness, headache, dilated pupils, lacrimation, nervousness, muscle fatigue, insomnia, paresthesia and dermatitis.

Xylenes: Inhalation, ingestion and/or skin absorption of xylene can cause dizziness, excitement, drowsiness, incoordination, staggering gait, eye irritation, corneal vacuolization, anorexia, nausea, vomiting, abdominal pain and dermatitis.

B. Threats to the Environment

The Hudson River adjoins the site on its eastern edge. The indigenous flora and fauna are extremely vulnerable to harm by migrating contaminants. The NJDEP has identified the Hudson River as an active striped bass nursery area. Wharf pilings, piers and other waterfront structures along the New Jersey coastline have been particularly cited as important habitats for the striped bass. Fingerling striped bass have been sighted in the waters around a dilapidated pier structure at the QRC waterfront.

A black material has been observed bubbling and seeping out of the Hudson River sediments in the area directly adjacent the bulkhead. The above actions discharge a sheen of contaminants directly into the river water. The analysis of this black material demonstrates elevated levels of SVOCs and heavy metals. In this local area, the seeps have been observed only in the tract adjacent to the Quanta Resources bulkhead. This material is further contaminating the Hudson River environment.

The subsurface soils of this site are contaminated with heavy metals, PCBs, VOCs and SVOCs. Ground-water flow of this river-side site is reflective of the river's change in tides. As the tide increases, water infiltrates the subsurface soils. When the tide recedes, the ground water washes contaminants from the soil out to the Hudson River. Numerous oily discharges into the Hudson River from the site have been documented by the U.S. Coast Guard, NJDEP and EPA. At times the landowners have installed a containment boom along the Hudson, however, the boom has not been effectively maintained. Moreover, contaminated oil which accumulates behind the boom is not collected and usually escapes to the waters of the Hudson on out-going tides.

A black tar-like material, derived from past releases, is being extruded from the ground to the surface of this site. Larger pockets of this material most likely exist underground. In addition to the asbestos in the boiler house, asbestos was also documented in the insulation of the pipe adjacent to the bulkhead. The current disposition of the asbestos previously on the bulkhead pipe is unknown. These materials are exposed to the natural elements, and therefore, dispersal is possible. USTs and underground piping remaining on site are another potential source of contamination.

PCB contamination has been documented in the subsurface soil. The Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Edition, states that PCBs are of increasing concern because of their "persistence in the environment, and tendency to accumulate in food chains, with possible adverse effects on animals at the top of food webs, including man."

IV. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Due to the soil and sediment contamination and the tidal flux of the ground water, it is likely that contaminants will continue to be released to the Hudson River. Delayed action to remove the contaminated soil and mitigate the possibility of a release from the USTs may significantly contribute to ground-water and surface-water contamination.

Delayed action to remove the contaminated soil and asbestos could increase the chances of direct contact or inadvertent ingestion/inhalation of these materials, and could also result in mobilization of these contaminants to uncontaminated areas.

V. CONCLUSIONS

This site is of potential health concern because of the risk to human health and the environment resulting from possible exposure to CERCLA Hazardous Substances at the site and the continued migration of contaminants from the surface soils, subsurface soils and river sediments into the ground water and the Hudson River. The potential for exposure to PCBs, lead, benzene, ethylbenzene, toluene, xylene, SVOCs and asbestos exists.

Considering the apparent age and abandoned nature of the USTs, and the possibility that hazardous materials may be contained therein, these tanks pose a threat by means of leakage of material to the subsurface soils and ground water.

The PCB-contaminated soils pose a hazard through direct contact and inadvertent ingestion. Migration through natural or man-made means is also a concern. The removal of the PCB-contaminated soils would eliminate the threat of direct contact. In addition, this removal would reduce the continuing possibility of contaminant mobilization.

There has been a release of CERCLA Hazardous Substances to the environment at the QRC site and there is a continued threat of future releases as well. Due to the substantial probability of a significant impact to human health and welfare and the environment, a CERCLA Removal Action is warranted at this time to address the PCB hotspot surrounding sample point QE002, the asbestos material noted in the text, the underground storage tanks/pipes and the discharge of hazardous substances from surface soils and subsurface soils into the ground water and the Hudson River.

VI. RECOMMENDATION

A CERCLA Removal Action is recommended at this time to mitigate the threats discussed above.

Mitigative measures recommended under a removal action include:

- Restrict access to the Site with a continuous perimeter fence.

- Define the extent of PCB soil contamination surrounding sample point QE002, then excavate and treat/dispose of the PCB-contaminated soil.

- Remove and treat/dispose of all visibly contaminated surface soils and any other soil determined to be contaminated during the course of site remediation

activities as determined by the OSC through visual observation, analytical testing or air monitoring.

- Remove the two underground fuel storage tanks reportedly located by the west fence and sample the surrounding soil and treat/dispose of same, as appropriate.

- Remove the septic tank in the "D" tank farm as well as any other underground piping and tanks including residual product and affiliated contaminated soil.

- Remove all underground piping and tanks previously used for the storage and/or transfer of waste or product materials on site as well as any residual material and sample the surrounding soil and treat/dispose of same, as appropriate.

- Remove and dispose of all asbestos containing materials from the boiler building.

- Cap the site, as determined by engineering estimates and sampling results, with an appropriate material. Vegetate and maintain same for 30 years.

- Provide an engineering study and design and construct a ground-water collection and treatment system which precludes the discharge of site contaminants to the Hudson River.

- Remove or permanently seal any pipes terminating at the Hudson River bulkhead.

- Maintain boom deployment/oil collection in the Hudson River at the bulkhead until the ground-water collection/treatment system is functioning adequately.

The public health risk associated with this site could change depending on future uses. Future land use at this site is presently uncertain. These future activities could include excavation and construction for commercial and/or residential use. Should land use or zoning change, further environmental investigation may be warranted.